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stroma is different, it being more prominent, and the epidermis being irregularly lacinate-cleft around it. The perithecia soon collapse, so that, on stripping off the epidermis, their position is indicated by little circular concavities around the margin of the stroma. This is closely allied to *M. Decoraënsis*, Ell., but differs in its smaller perithecia and narrower *appendiculate* sporidia.

MELANCONIS (MELANCONIELLA) BIANсата.—Perithecia circinating in a stroma scarcely different from that of the preceding species, globose, .75^{mm}. in diameter, soon collapsing, 6–10, their short, cylindrical ostiola with 4-angled or imperfectly cleft tips, united in a dirty brown, narrowly elliptical or suborbicular disk, which slightly rises and bursts through the epidermis by which it is closely girt; asci 190–200x300 μ , evanescent, (8-spored?); sporidia oblong-elliptical, uniseptate, soon becoming brown, and generally with a short, stout, tuberculiform projection at each end, length, without appendage, 35–45x15–19 μ .

Found on the same limbs with the preceding species.

VALSA FAGICOLA.—Stroma formed of the scarcely altered substance of the bark; perithecia circinating, 10–15, subglobose, membranaceous, collapsing (.33^{mm}), abruptly contracted into a slender, cylindrical neck about .33^{mm}. long, the necks all converging and piercing the epidermis in a small, papilliform, black disk; tips obtuse, with a rather broad opening; asci (spore-bearing part) 18–20x3 μ , at first with a convex, hyaline tip which soon disappears, leaving them truncate above; (paraphyses?); sporidia biserial, cylindrical, hyaline, curved, 2.5–3.5x.5–.75 μ .

The asci are arranged in a racemose manner, like those of *Valsa ciliatula*, Fr., of which this might perhaps be considered a small form.

On dead limbs of *Fagus ferruginea*. West Chester, Pa., June, 1882. E. H. J. and G.

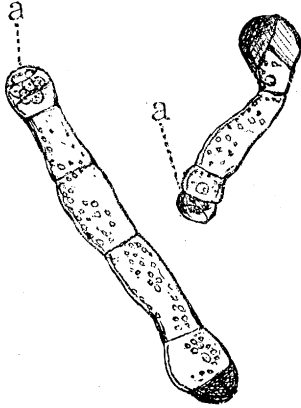
Pinus Banksiana.—The *Gardener's Monthly* for 1873 gives an account of the large size of *Pinus Banksiana* at Marquette and other places in the Lake Superior region. Coming across the continent from the Pacific coast over the Northern Pacific R. R., the first tree of the distinctively Atlantic group to meet us is *Pinus Banksiana*. At Motley, in Morrison County, Minnesota, the trees seemed to be about 40 feet high, and some were 4 feet in circumference. Soon after meeting these we came to *Pinus rigida*, black spruce, white pine and tamarack. The forests—if scattered groups of trees might be so called—had a comparatively young look, and seemed to tell of a natural march of forest growth westward.

THOS. MEEHAN.

Fern Notes.—Last spring I examined with considerable care the development of the prothallia of *Struthiopteris Germanica*, and found that they were very distinctly dioecious. In about five weeks from the time the spores were started the first antheridia were mature; but it was more than six weeks *later* before mature archegonia were noticed, and these were on different prothallia. The

prothallia bearing the archegonia were like those in most ferns, and had the heart shape characteristic of the fern-prothallium. In no cases were perfect antheridia found upon these, while, on the other hand, none of the male prothallia was found to subsequently develop archegonia, although carefully watched.

The male prothallia were much smaller, and, though sometimes heart-shaped, were generally more or less irregular. In a few cases, there was observed on the prothallia an antheridium, which consisted simply of a row of four or five cells, as shown in the annexed figure.



The conditions under which they were grown may have affected their development. The spores were sown rather thickly under a small glass in an ordinary room. These gave rise principally to the male prothallia, though a few developed into the female form. A number of them was transferred, when a few weeks old, to a hot-bed, and these produced a much larger proportion of the female prothallia.

The spores were gathered the last of March, having therefore remained on the plants through the winter. They began to germinate in five days from the time they were sown.

It was found that the spores of *Onoclea sensibilis* germinated with equal promptness.

On examining a number of prothallia of *Aspidium spinulosum*, gathered on the 17th inst., one was found with a well-marked fibro-vascular bundle, although the vessels were not perfect.

Detroit, Mich.

DOUGLASS H. CAMPBELL.

Cleistogene flowers.—*Nemophila maculata*, Benth. At Clark's Ranch, on the Merced River in California, I found this species wholly cleistogene in June last, in the cultivated spots near the stream. As in all cleistogamous plants, every flower was fertile, and the weight of a small plant covered with seed vessels was remarkable. Out of what must have been many hundreds of plants which came under my eye, I saw but one flower with a perfect corolla.

Impatiens pallida, Nutt.—Along the coast of Alaska, in lat. 56°, in the early part of July I found *Impatiens pallida* with all the flowers which had so far appeared, evidently cleistogene. I could find none with petals. Two weeks later, farther north, in lat. 59°, I found the same plant in apparently the same stage of flowering, with all the flowers having, or having had, corollas. I could see nothing which would suggest any satisfactory reason for the different behaviors.

Opuntia leptocaulis, D. C.—In my garden I have a large bush of the long-spined form of this species. Though several years old it has never borne a flower. Over a year ago a number of small buds appeared, but not one opened, or, indeed, advanced beyond a com-